

Amendments to the Specification

Please replace paragraph 20 with the following paragraph:

--In one embodiment of the present invention, the fuel control system comprises an open loop (OL) control signal and a closed loop (CL) control signal, which are combined mathematically to generate the actual fuel control signal for control system 10. The OL signal is calculated by measuring air mass entering the ICE 12 and calculating a fuel amount that attempts to control the equivalence ratio  $\phi$  to a value of 1, the ideal level for efficient catalytic converter operation. Because of component variation, it is difficult to control the equivalence ratio  $\phi$  to a precise value of 1. Because of imperfections in calculating OL equivalence ratio  $\phi$  control, the present system 10 is equipped with an exhaust oxygen sensor (EOS) [10] that measures oxygen content. The EOS may be a discrete switch, or analog device, but is not limited to such, depending on the control algorithms and hardware of the controller 14. The switch type EOS is used to generate the plots shown in Figure 2B. The CL control system is formed by adjusting the equivalence ratio  $\phi$  based on the EOS signal.--